# FIGURE 2 A

TGTTATTTGC <u>Hqa</u> I	GGACGCTGAT	TGCAAAACGA	CATATAAGGG	GGGAGTTTCA	CTGCGATCAA	ACAAAGGCGG	GCAACCGCGT	GGCGCGGCAG	GGGACGAGTC	AAGTTTCCAA	ATCCTGATGT	TGGACGGTTT
TTGCTGACGC	AATCTTAATG	TGGAAGCGTT	ATTCCCCCGG	TATGATTTAG	GAGCTGCAAT	GTCATCAACC	ccccrcacc	CATTTTCCGG	GGAACCGATT	TGGGATTGGG	GATTATGACC	CCCAGCAGAA ATTAAGAGAT GGGGCACTTG GTATGCCAAT GAACTGCAAT TGGACGGTTT
TTACGCCCGA	AGCGGCGGCA	CGGCCAACAT	reccercres	TTACGACCTT	CACAAAAGGA	CGGGGATGTG	TGAAGTCGAT	GACACATTTT	CCATTTTGAC	AGGAAAGGCT	TGCCGACATC	GTATGCCAAT
AAAAACGGCT <u>Pst</u> i	ATTCTGCAGC	TGCCCAATGA	ACGGTATTAC	GCTACGGTGC	CAAAGTACGG	TTAACGTTTA	TAACCGCGGT	TTAAAGCCTG	GGCATTGGTA	ATAAGTTTCA	ATTTGATGTA	GGGCACTTG
ATGAAACAAC	Trecrecerc	GAATGGTACA	TTGGCTGAAC	GCGGATGTGG	ACGGTTCGGA	TCCCGCGACA	ACCGAAGATG	GAACACCTAA	GATTITAAAT	AACCGCATCT	AACTATGATT	ATTAAGAGAT
TCTAGAGTC	GCTCATCTTC	GCAGTATTT	CTCGGCATAT	AACGAGCCAA	TCAAAAAGGG	AAGTCTTCAT	CGCTGATGCG	AATTTCAGGA	CACATACAGC	CCGAAAGCTG	TGAAAACGGC	CGCAGCAGAA
	scr ttacgccca ttgct <u>gacgc</u> t	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC Haai PStI GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGCTGAT	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC HGAI  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC HGAI  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC HGAI  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA	TCTAGAGTC ATGAAACAAC AAAAACGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC HGAIL  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA  TCAAAAAGGG ACGGTTCGGA CAAAGTACGG CACAAAAGGA GAGCTGCAAT CTGCGATCAA	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC HGAI  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA  TCAAAAAGGG ACGGTTCGGA CAAAGTACG CACAAAAGGA GAGCTGCAAT CTGCGATCAA  AAGTCTTCAT TCCCGCGACA TTAACGTTTA CGGGGATGTG GTCATCAAACG ACAAAGGCGG	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC  PSti  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA  AACGAGCCAA GCGGATGTGG CACAAAGGGA GAGCTGCAAT CTGCGATCAA  AAGTCTTCAT TCCCGCGACA TTAACGTTTA CGGGGATGTG GTCATCAACC ACAAAGGCGG  CGCTGATGCG ACCGAAGATG TAACCGCGGT TGAAGTCGAT CCCGCTGACC GCAACCGCGT	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC  PSt.  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGCCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA  TCAAAAAGGG ACGGTTCGGA CAAAGTACG CACAAAAGGA GAGCTGCAAC  AAGTCTTCAT TCCGGCGACA TTAACGTTTA CGGGGATGTG GTCATCAACC  CGCTGATGCG ACCGAAGATG TAAACGTTTA CGGGGATGTG GTCATCAACC  AAATTTCAGGA GAACACCTAA TTAAAGCCTG GACACATTTT CATTTTCCGG GCCCGCCAG	TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC Hgal  GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGCGCA AATCTTAATG GGACGCTGAT  GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA  CTCGGCATAT TTGGCTGAAC ACGCTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG  AACGAGCCAA GCGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGAGTTTCA  TCAAAAAGGG ACGGTTCGGA CAAAGTACG CACAAAAGGA GAGCTGCAAT  TCAAAAAGGG ACGGTTCGGA CAAAGTACG CACAAAAGGA GAGCTGCAACCGCG  CGCTGATGCG ACCGAAGATG TAACGTTTA CGGGGATGTG GTCATCAACC  AATTTCAGGA GAACACCTAA TTAAAGCCTG GACACCTGAC GCAACCGCGT  AATTTCAGGA GAACACTAA TTAAAGCTG GACACATTTGAC GGAACCGATC  CACATACAC GATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GAATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GAATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GAATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GAATTTTAAAT GCCATTGGTA CCATTTTGAC GGAACCGATC  CACATACAC GAATTTTAAAT GCCATTTTTGAC GGAACCGATT GGGACGAGTC  CACATACAC GAATTTTTAAAT GCCATTTTTGAC GGAACCGATT GGGACGAGTC  CACATACAC GAATTTTTAAAT GCCATTTTTTTTTTTTT	TCTAGAGTC ATGAAACAC AAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC PSt.  GCTCATCTTC TTGCTGCTC ATTCTGCAGC AGCGGGGCA AATCTTAATG GGACGCTGAT GCAGTATTTT GAATGGTACA TGCCCAATGA CGCCCAACAT TGGAAGCGTT TGCAAAACGA AACGATTTTT GAATGGTACA ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG AACGATCTCAAAAGGG ACGGTTTCAG CAAAAGGG CACAAAGGG CACAAAAGGG ACGGTTCAA TTAACGTTTA CGGGATGTG GTCATCAAC CCGCTGAC ACAAAGGCG CAAAAGGCG CACAAAGGCG CACAAAGGG AACGTTCAT TCCCGCGACA TTAACGTTTA CGGGATGTG GTCATCAACC ACAAAGGCG CAAAAGGCG CAAAAGGCG AACGTTTAAAGTTTAAGGTTTAAAGTTTCAGGA GAACCCCTAA TTAAAGCTTTAAAGTTTCAGGA GAACCCCTAA TTAAAGCTTGA CATTTTCAGGA CAAAAGGCG CAACCGCAGCCCCAAAAGCCG GAACCCCATAAAGCTG AACATTTAAAT GGCATTTTAAA CCGCAAAAGGCT TGGGATTTGGG AACCCATCAAAGCTG AAAAGTTTCAAAAGCTG AAAAGTTTCAAAAGCTT ATAAAGTTTCAAAAGCCTTTAAAACTTTTAAAACCTTGAAAAGGCT TGGGATTTGGG AACCCAAAACCCAAAAGCTTTAAAACTTTTCAAAAAGCTT TGGGATTTGGG AACCCCAAAAGCTTTAAAACTTTTCAAAAAGCTT TGGGATTTGGG AACCCCAAAACCCAAAAGCTTTTAAAACTTTTCAAAAAGCTT TGGGAATTTCCAAAAGCTTTTAAAACTTTTCAAAAAGCTT TGGGAATTTCCAAAAGCTTTTAAAACTTTAAAACTTTTCAAAAAGCCTTTAAAAGCTTTTAAAAACTTTTAAAACTTTTAAAAACTTTTAAAAAA	TCTAGAGIC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC TGTTATTTGC BELI GCTCATCTTC TTGCTGCTC ATTCTGCAGC AGCGGCGGCA AATCTTAATG GGACGTCAT GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA CTCGGCATAT TTGCCTGAAC ACGTATTAC TGCCGTCTG ATTCCCCCGG CATATAAGG AACGAGCCAA GCGCATGTGG GCTACGGTGC TTACGACTT TATGATTTAG GGGAGTTTCA TCAAAAAGGG ACGCTTCGGA CAAAGTACG CACAAAGGG GACCTGCAAT TCAAAAAGGG ACGCTTCGGA CAAAGTACG TAAAGTCGAT GTCATCAACG CGCTGATGC ACCGAAGATG TAAACGTTTA CGGGGATGT GTCATCAACG CGCTGATGC ACCGAAGATG TAAAAGCCTG GACACACTGT AATTTCAGGA GAACACCTAA TTAAAGCCTG GACACATTTT CATTTTCCGG GGCGCGGCG CACATACAG GAACACTTTAAAT GGCATTGGTA CCATTTTCCGG GACCCGCTG CCGAAACGC AACTTTAAAT GGCATTGGTA CCATTTTCCGG AACTTTCCAA TGAAAACGC AACTATGATGTA TGCCGACATC TGGGATTGGG AACTTTCCAA TGAAAACGC AACTATGATGTA TGCCGACATC GATTATGACC ATCCTGATGT

CAGGGAAAAA ACGGGGAAGG AAATGTTTAC GGTAGCTGAA TATTGGCAGA ATGACTTGGG

CCGTCTTGAT GCTGTCAAAC ACATTAAATT TTCTTTTTTG CGGGATTGGG TTAATCATGT

### FIGURE 2 B

GAACGGTACG GTCGTTTCCA AGCATCCGTT GAAATCGGTT ACATTTGTCG ATAACCATGA CGCGCTGGAA AACTATTTGA ACAAAACAAA TTTTAATCAT TCAGTGTTTG ACGTGCCGCT 

AACAGACGGA CCCGGTGGGG CAAAGCGAAT GTATGTCGGC CGGCAAAACG CCGGTGAGAC AAAAGCGAGA AAACAGTATG CGTACGGAGC ACAGCATGAT TATTTCGACC ACCATGACAT TGTCGGCTGG ACAAGGGAAG GCGACAGCTC GGTTGCAAAT TCAGGTTTGG CGGCATTAAT ATGGCATGAC ATTACCGGAA ACCGTTCGGA GCCGGTTGTC ATCAATTCGG AAGGCTGGGG AGAGTITCAC GIAAACGGCG GGTCGGITTC AATTIAIGIT CAAAGAIAGA AGAGCAGAGA CGCTTTTATT CTCACAAGGG AATCTGGATA CCCTCAGGTT TTCTACGGGG ATATGTACGG GACGAAAGGA GACTCCCAGC GCGAAATTCC TGCCTTGAAA CACAAAATTG AACCGATCTT TACACAGCCG GGGCAATCGC TTGAGTCGAC TGTCCAAACA TGGTTTAAGC CGCTTGCTTA

TTACATTITA TAATTT TAACAAAGTG TCATCAGCCC TCAGGAAGGA CTTGCTGACA GITIGAAICG CAIAGGIAAG GCGGGGAIGA AAIGGCAACG ITAICIGAIG IAGCAAAGAA GGACGGATTT CCTGAAGGAA ATCCGTTTTT TTATTTTGCC CGTCTTATAA ATTTCTTTGA BamHI

AGCAMATGTG TCGAAAATGA CGGTATCGCG GGTGATCA

SEQ ID NO:5

FIGURE 3

Oligonucleotide duplex A

NCOI

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3 n	5' GGGTTTTTTATTTTAATTTTCTTTCAAATACTTCCACCATGGGTAACGGATCCA 3' SE 3' CCCAAAAATAAAAATTAAAAGAAAGTTTATGAAGGTGGTACCCATTGCCTAGGTTCGA 5' SE	SE
	Oligonucleotide duplex B	
	<u>Hga</u> I SITE α-AMYLASE	
5	CATG   GCAAATCTTAATGGACGCTGATG 3' SEQ ID NO:8	
<del>-</del>	CGTTTAGAATTACCTGCGACTACGTCAT 5' SEQ ID NO:9	
	Met' mature a-Amylase	

## FIGURE 2 A

TCTAGAGTC ATGAAACAAC AAAAACGGCT TTACGCCCGA TTGCTGACGC HgaI XbaI

TGTTATTTGC GCAGTATTTT GAATGGTACA TGCCCAATGA CGGCCAACAT TGGAAGCGTT TGCAAAACGA CTCGGCATAT TTGGCTGAAC ACGGTATTAC TGCCGTCTGG ATTCCCCCGG CATATAAGGG AAGTCTTCAT TCCCGCGACA TTAACGTTTA CGGGGATGTG GTCATCAACC ACAAAGGCGG AATTTCAGGA GAACACCTAA TTAAAGCCTG GACACATTTT CATTTTCCGG GGCGGGGAG CACATACAGC GALTITAAAT GGCATTGGTA CCATTTTGAC GGAACCGATT GGGACGAGTC GCTCATCTTC TTGCTGCCTC ATTCTGCAGC AGCGGGGGA AATCTTAATG GGACGCTGAT AACGAGCCAA GCGGATGTGG GCTACGGTGC TTACGACCTT TATGATTTAG GGGAGTTTCA TCAAAAAGGG ACGGTTCGGA CAAAGTACGG CACAAAAGGA GAGCTGCAAT CTGCGATCAA CGCTGATGCG ACCGAAGATG TAACCGCGGT TGAAGTCGAT CCCGCTGACC GCAACCGCGT CCGAAAGCTG AACCGCATCT ATAAGTTTCA AGGAAAGGCT TGGGATTGGG AAGTTTCCAA TGAAAACGGC AACTATGATT ATTTGATGTA TGCCGACATC GATTATGACC ATCCTGATGT CGCAGCAGAA ATTAAGAGAT GGGGCACTTG GTATGCCAAT GAACTGCAAT TGGACGGTTT CAGGGAAAAA ACGGGGAAGG AAATGTTTAC GGTAGCTGAA TATTGGCAGA ATGACTTGGG CCGTCTTGAT GCTGTCAAAC ACATTAAATT TTCTTTTTG CGGGATTGGG TTAATCATGT HaaI PstI

# FIGURE 2B

GAACGGTACG GTCGTTTCCA AGCATCCGTT GAAATCGGTT ACATTTGTCG ATAACCATGA  $\overline{\operatorname{Sal}}$ I CGCCCTGGAA AACTATTTGA ACAAAACAAA TTTTAATCAT TCAGTGTTTTG ACGTGCCGCT 

ATGGCATGAC ATTACCGGAA ACCGTTCGGA GCCGGTTGTC ATCAATTCGG AAGGCTGGGG CGCTTTTATT CTCACAAGGG AATCTGGATA CCCTCAGGTT TTCTACGGGG ATATGTACGG AAAAGCGAGA AAACAGTATG CGTACGGAGC ACAGCATGAT TATTTCGACC ACCATGACAT AACAGACGGA CCCGGTGGGG CAAAGCGAAT GTATGTCGGC CGGCAAAACG CCGGTGAGAC TACACAGCCG GGGCAATCGC TTGAGTCGAC TGTCCAAACA TGGTTTAAGC CGCTTGCTTA GACGAAAGGA GACTCCCAGC GCGAAATTCC TGCCTTGAAA CACAAAATTG AACCGATCTT TGTCGCCTGG ACAAGGGAAG GCGACAGCTC GGTTGCAAAT TCAGGTTTGG CGGCATTAAT AGAGTTTCAC GTAAACGGCG GGTCGGTTTC AATTTATGTT CAAAGATAGA AGAGCAGAGA

#### BamHI

GTTTGAATCG CATAGGTAAG GCGGGGATGA AATGGCAACG TTATCTGATG TAGCAAAGAA BCLI GGACGGATTT CCTGAAGGAA ATCCGTTTTT TTATTTTGCC CGTCTTATAA ATTTCTTTGA TTACATITITA TAATTATIT TAACAAGIG TCATCAGCCC TCAGGAAGGA CTIGCIGACA

SEQ I'M NO: 5 AGCANATGTG TCGAAAATGA CGGTATCGCG GGTGATCA FIGURE 3

Oligonucleotide duplex A

	SEG ITA NO:6 SEG ITA NO:7	
NCOI BamHI HindIII	5' GGGTTTTTAATTTTAATTTTCTTTCAAATACTTCCACCATGGGTAACGGATCCA 3'3'	Oligonucleotide duplex B
	വ	

S In Q CATG GCAAATCTTAATGGACGCTGATG 3' Met mature a-Amylase NCOI ກຸຕ